-5-

Q. Lucas

✓ 76. Two VR (75-30) tubes are connected in series. The voltage across them and their current limit would be:

_____a) 60 volts at 75 milliamperes

_____b) 75 volts at 60 milliamperes

_____c) 75 volts at 30 milliamperes

_____d) 150 volts at 60 milliamperes

____✓____e) 150 volts at 30 milliamperes

✓ 77. The ripple frequency of a fullwave single-phase rectifier is:

_____a) equal to the input frequency

_____b) one-half of the input frequency

____✓____c) twice the input frequency

_____d) three times the input frequency

_____e) one-third the input frequency.

✓ 78. A capacitor-input filter is characterized by:

_____a) high voltage output and good regulation

_____b) low voltage output and good regulation

_____c) low voltage output and poor regulation

____✓____d) high voltage output and poor regulation

_____e) high voltage output and low peak current

✓ 79. A 25,000 ohm 50 watt bleeder resistor is to be replaced by two 50,000 ohm resistors in parallel. Their individual power ratings (in watts) should be:

_____a) 50

_____b) 100

____✓____c) 25

_____d) 200

_____e) 12.5

.000004

4×10^{-5}

376.8

$\frac{4}{150).2} \times 10^5$

375022

10^1

$\frac{11}{1.502.2 \times 10^{19}}$

$\frac{100000}{890432} \frac{1.5022}{8}$ 006,00,000

376.8

3763

376.8

5×10^5

80. In Figure 11, the a-c component of the input voltage to the filter is 100 volts, 60 cps. The magnitude of the ripple (in volts) present at the output is approximately:

_____ a) 83.2

_____ b) 100

___✓___ c) 16.8

_____ d) 30.4

___✓___ e) 32.9
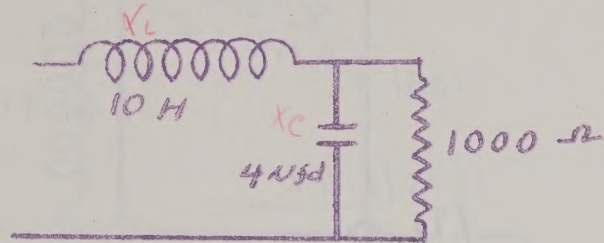
81. A power transformer with a peak to peak secondary voltage of 1,000 volts is to be used in conjunction with a full-wave single-phase rectifier circuit and a capacitor-input filter. The voltage appearing across the input capacitor is approximately:

_____ a) 705

___✓___ b) 1,000

_____ c) 1,410

_____ d) 354

___✓___ e) 500

82. The speed of synchronous motor containing two pairs of poles and operated on a 60 cycle single phase source, will be:

___✓___ a) 1800 RPM

_____ b) 3600 RPM

_____ c) 120 RPM

___✓___ d) 7200 RPM

$X_L = 6.28 \times 60 \cdot 10 = 3768$

10 H

4 uf

1000

$\frac{6.2.8}{60}$ 376.80

$X_C = \frac{1}{6.28 \cdot 60 \cdot 4 \times 10}$

$\frac{4 \times 10^{-6}}{2.072 \times 10^{-3}}$

7.41×10^{3}

1000 | 1.41

70.788

01300

.0014072

31. When the voltage of the _____ shown is turned 90° in the _____ the _____ generator voltage will _____ from its _____ of _____ to _____.

_____ a) be equal to _____

_____ b) be _____ to zero

_____ c) _____ more after rotating a _____ positive amount.

32. Both primary and secondary windings of the transformer shown are identical. 20 volts is impressed on the primary, and _____ windings are parallel. If the secondary is rotated so _____ as much as _____ of as _____ the primary, the voltage induced will be _____.

_____ a) 5 V

_____ b) 2V

_____ c) 2.5V

_____ d) 17.3V

33. The direction of rotation of a single phase induction motor can be reversed by:

_____ a) reversing the _____ leads to both windings.

_____ b) _____ the power at one winding off.

_____ c) _____ _____

_____ d) _____ both wound in series.

34. The slip of _____ _____ motor _____

_____ a) _____

_____ b) _____

_____ c) about 10%

_____ d) about 50%

R₁

R

A.C. INPUT

83. When the rotor (R) of the selsyn system shown is rotated 30° in the direction indicated, the stator voltages will: PAGE 23A

_____✓___a) be changed in phase.

_____b) be changed in polarity

_____⊙✓_c) remain the same after R¹ rotates a corresponding amount

_____d) be changed in amplitude

84. Both primary and secondary windings of the transformer shown are identical. 10 volts is induced in the secondary when both windings are parallel. If the secondary is rotated so that it forms an angle of 30° with the primary, the voltage induced will be:

_____✓__a) 8.7V

_____b) 5V

_____c) 5.75V

_____d) 17.3V

10 VOLTS ac

85. The direction of rotation of a single phase induction motor may be reversed by:

_____a) reversing the connections to both windings

_____b) shifting the phase in one winding 90°

_____✓__c) reversing the connections to one winding

_____d) connecting both windings in series

86. The slip of synchronous motor is:

_____✓___a) zero

_____b) infinite
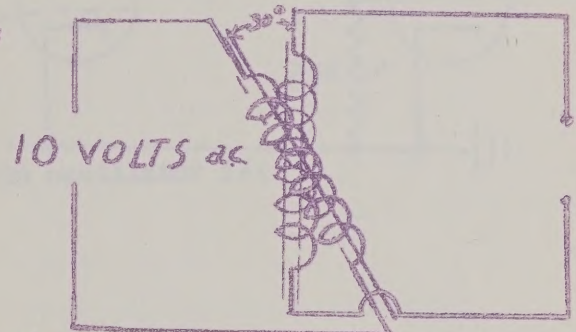
_____c) about 5%

_____d) about 95%

_____e) about 10%

83. When the rotor (R) of the selsyn system shown is rotated 30° in the direction indicated, the stator voltages will: (see ...)

    a) be changed in phase

    b) be changed in polarity

    c) remain the same after R' rotates a corresponding amount.

    d) be changed in magnitude.

84. Both primary and secondary windings of the transformer shown are identical. 10 volts is induced in the secondary when both windings are parallel. If the secondary is rotated so that it forms an angle of 30° with the primary, the voltage induced will be:

    a) 8.7V

    b) 5?

    c) 5.75V

    d) 11.7V

10 VOLTS AC

85. The direction of rotation of a single phase induction motor may be reversed by:

    a) reversing the connections to both windings

    b) shifting the phase in one winding 90°

    c) reversing the connections to one winding

    d) connecting both windings in series

86. The slip of synchronous motor is:

    a) zero

    b) infinite

    c) about 5%

    d) about 95%

    e) about 10%
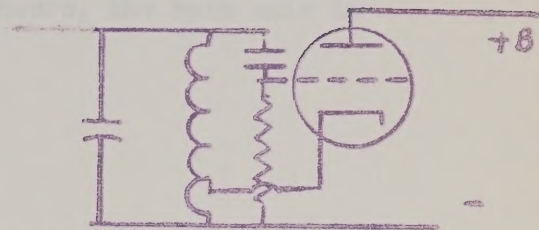
$$F_2 = \frac{1}{2\pi \sqrt{LC}}$$
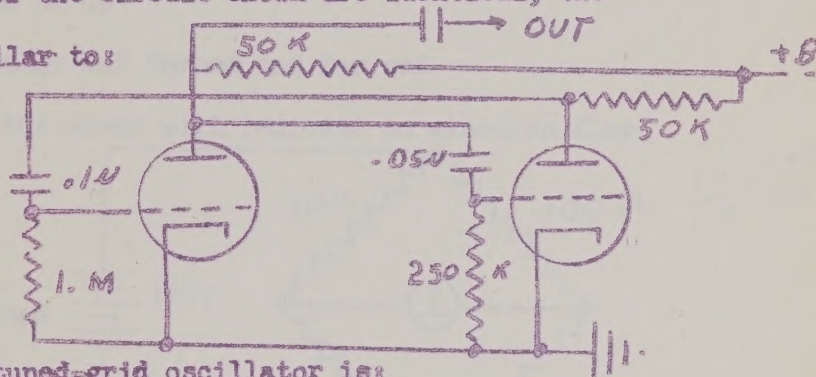
87. The frequency of the oscillator shown is determined by:

_____ a) the L C ratio

_____ b) the amount of coupling

___✓___ c) the L C product

_____ d) the plate characteristic

88. Providing that both triodes of the circuit shown are identical, the

output wave form will be similar to:

_____ a) ⎍⎍⎍

___✓___ b) ⎍⎍⎍ ✓

_____ c) ⎍⎍⎍

_____ d) ⋀⋀⋀

89. Feedback in the tuned-plate tuned-grid oscillator is:

_____ a) magnetic

_____ b) inductive

_____ c) resistive

_____ d) directly between the plate and grid coils

___✓___ e) through the grid-plate capacity of the tube

90. A 1,000 K.C. R.F. carrier is 50% amplitude modulated with a pure

sine wave of 1000 c.p.s. The resultant frequencies will be:

_____ a) 1000 K.C. and 1001 K.C.

___✓___ b) 1000 K.C., 999 K.C., 1001 K.C.

_____ c) dependent upon the deviation ratio

_____ d) 998 K.C., 999 K.C., 1000 K.C., 1001 K.C., 1002 K.C.

87. The frequency of the oscillator shown is determined by:

    a) the L-C ratio _____
    b) the amount of coupling _____
    c) the L-C product _____
    d) the plate characteristics _____

88. Knowing that both triodes of the circuit shown are identical, the output wave form will be similar to:

    a) _____
    b) _____
    c) _____
    d) _____

89. Feedback in the tuned-plate tuned-grid oscillator is:

    a) magnetic _____
    b) inductive _____
    c) resistive _____
    d) directly between the plate and grid coils _____
    e) through the grid-plate capacity of the tube _____

90. A 1,000 K.C. R.F. carrier is 50% amplitude modulated with a pure sine wave of 1000 c.p.s. The resultant frequencies will be:

    a) 1000 K.C. and 1001 K.C. _____
    b) 1000 K.C., 999 K.C., 1001 K.C. _____
    c) dependent upon the deviation ratio _____
   d) 999 K.C., 1000 K.C., 1001 K.C., 1012 K/C. _____

X 91. The spin axis of a perfectly balanced gyro isperpendicular to the
earth's surface at the equator. After twelve hours, the spin axis in
relation to the earth's surface:

_____✓_____ a) will be totally unchanged

_____ b) will be parallel

_____ c) will Form an angle of 45°

____✓_____ d) will be perpendicular but turned end for end

✓ 92. In the bridge circuit shown, the meter will indicate an electron flow
thru to the:

_____ a) left
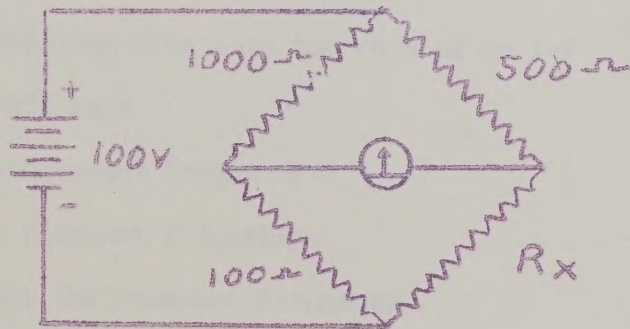
_____ b) cannot be determined

____✓_____ c) right

____✓_____ d) no current

$\frac{10}{100} = \frac{100}{1000}$

10Ω   100Ω

100V

100Ω   1000Ω
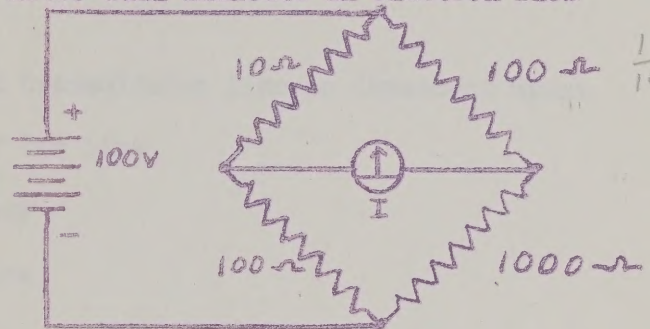
✓ 93. In Figure 3, theresistance (in ohms), of R_x in the balanced bridge
circuit is:

____✓_____ a) 50

_____ b) 500

_____ c) 10,000

_____ d) 5,000

_____ e) 100

$\frac{500}{1000} = \frac{50}{100}$

1000Ω   500Ω

100V

100Ω R_x

✓ 94. 1,000 volts dc are applied to a series RC circuit containing a 0.5 megohm
resistor and a 0.01 microfarad capacitor. After 0.005 second has elapsed,
the circuit current (in milliamperes) will be:

_____ a) 0.735   ____✓_____ e) 1.36

_____ b) 200   1.26

_____ c) 5

_____ d) 5.44

$TC = RC$

$5 \times 10^5 \times 1 \times 10^{-8} =$

$5 \times 10^{-3} = .005$ sec

$1 TC = .005$ sec.

$63. \% \ of \ 1000 = 630$

$\frac{630}{5 \times 10^5} = 1.26$ ma

95. The spin axis of a perfectly balanced gyro [is] perpendicular to the earth's surface at the equator. After twelve hours, the spin axis in relation to the earth's surface:

   a) will be totally unchanged _____

   b) will be parallel _____

   c) will form an angle of 45° _____

   d) will be perpendicular but turned end for end _____

96. In the bridge circuit shown, the meter will indicate an electron flow then to the:

   a) left _____

   b) cannot be determined _____

   c) right _____

   d) no current _____

97. In Figure 1, thereabouts (in ohms) of R_x so the balanced bridge circuit is:

   a) 50 _____

   b) 500 _____

   c) 10,000 _____

   d) 5,000 _____

   e) 100 _____

98. 1,000 volts dc are applied to a series RC circuit containing a 0.5 megohm resistor and a 0.02 microfarad capacitor. After 0.005 second has elapsed, the circuit current (in milliamperes) will be:

   a) 0.735 _____   e) 1.35 _____

   b) 200 _____

   c) 5 _____

   d) 7.35 _____

95. Two identical 1=microfarad capacitors connected in parallel are charged
to 100 volts. If they are connected in series aiding and discharged through
a 2 megohm resistor, when they first start to discharge, the current
will be:

_____ a) 100 milliamperes

____✓____ b) 100 microamperes

_____ c) zero

_____ d) infinite

_____ e) 50 microamperes
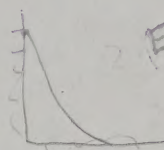
96. The characteristicsimpedance of a transmission line is dependent upon:

____✓____ a) length and spacing of the line

_____ b) wire sizeand frequency

_____ c) size and length of wire

_____ d) length and frequency

____✓____ e) wire size and wire spacing

97. The insertion of a powdered=iron slug into the core of an i=f
transformer operating at 456 kcs:

_____ a) increases the resonant frequency

____✓____ b) decreases the resonant frequency

_____ c) does not affect the resonant frequency

_____ d) is eddy=current tuning

_____ e) decreases the inductance

98. Resistance loading of i=f transformers:

_____ a) decreases the band=pass

_____ b) does not affect the output of the receiver

_____ c) improves the selectivity of the receiver

____✓____ d) improves the fidelity of the receiver